

REMARKS

I. Status of the Claims

By this Amendment After Final, claims 67 and 70 have been canceled without prejudice or disclaimer, and claims 68 and 78 have been amended. No new matter has been added. Claims 39-66, 68, 69, and 71-78 are present in this application and are pending on the merits.

II. Claim Rejection under 35 U.S.C. § 103(a) based on Mortimer and Egraz

1) Claims 39-49 and 51-77

Claims 39-49 and 51-77 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious based on U.S. Patent No. 6,620,856 to Mortimer et al. ("Mortimer") in combination with U.S. Patent No. 5,432,239 to Egraz et al. ("Egraz"). The Office states that Mortimer teaches the use of dispersant agent in an amount from 0.01 to 2.0% by weight, based on the dry weight of the inorganic particulate, and asserts that this amount overlaps with the amounts recited in the pending claims. Final Office Action at 4. The Office further states that Egraz teaches an overlapping amount of 0.2 to 2.0%, and asserts that, therefore, Mortimer and Egraz both disclose amounts of dispersants included by the claimed term "sub-effective." *Id.* Applicant respectfully traverses this claim rejection.

A) Standard of Law

Obviousness under 35 U.S.C. § 103 must be determined based on the factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 U.S.P.Q. 459 (1966). These inquiries include (1) the scope and contents of the prior art; (2) differences

between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. Graham, 383 U.S. at 16-17, 148 U.S.P.Q. at 467; see also KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1734, 82 U.S.P.Q.2d 1385, 1391 (2007) (advising that "the [Graham] factors continue to define the inquiry that controls.").

According to the M.P.E.P., the Office must consider each prior art reference "in its entirety, i.e., as a whole, including portions that would lead away from the claimed inventions." M.P.E.P. § 2141.03(VI) (citing W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983) (emphasis in original)). Moreover, the Supreme Court has recently confirmed the well-settled doctrine that "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." KSR Int'l Co., 127 S.Ct. at 1741, 82 U.S.P.Q.2d at 1396. Implementing this doctrine, the M.P.E.P. advises that if the modifications to a prior art reference result in "chang[ing] the principle of operation of the prior art [reference,] then the teachings of the references are not sufficient to render the claims *prima facie* obvious." M.P.E.P. § 2143.01(VI) (citation omitted).

B) Mortimer Fails to Teach Grinding of an Inorganic Particulate Material in the Presence of Any Dispersant, Let Alone in a Sub-Effective Amount

Each of pending independent claims 39, 68 (as amended herein), and 69 recite, *inter alia*, a method of grinding an inorganic particulate material in an aqueous suspension, wherein said aqueous suspension comprises a sub-effective amount of at least one dispersant for the inorganic particulate material. As explained in Applicant's previous Response to Office Action dated August 11, 2008 ("previous Response"), Mortimer fails to teach or suggest the grinding of an inorganic particulate material in the

presence of *any* dispersant, let alone in a sub-effective amount. Previous Response at 10. The only teaching of the use of a dispersant in Mortimer is *after* grinding has already taken place, not before or during grinding.

Mortimer is primarily directed to the preparation of a rheologically stable, concentrated aqueous suspension of particulate carbonate from a dilute, low-solids aqueous suspension, such process comprising steps of dewatering, mechanical working, and addition of dispersing agents. See Abstract and col. 2, lines 1-60. However, each of these steps is to be conducted *after* grinding has already taken place. Mortimer's only disclosure of grinding is for the preparation of its initial dilute, low-solids suspension of carbonate in its "step (a)," which is then to be subsequently processed into a concentrated, high-solids aqueous suspension via Mortimer's described process. Col. 2, line 66 through col. 3, line 1. Mortimer does not teach or suggest that a dispersant may be used in this initial grinding step, let alone in what amounts. In contrast, each of the teachings of the use of dispersants are included in steps that follow after grinding in later treatment of the previously ground material. See col. 2, lines 1-60; col. 3, line 40, through col. 4, line 4.

It is in this context (the use of a dispersant *after* grinding) that Mortimer discloses that a dispersant agent may be used in an amount ranging from 0.01% to 2.0% by weight, based on the dry weight of carbonate present. Col. 3, line 67 through col. 4, line 4. Therefore, whatever Mortimer may teach about the amounts of dispersants to be used in steps subsequent to grinding, Mortimer does not teach or suggest the use of

dispersants during grinding, let alone in a sub-effective amount, as recited in Applicant's claims.

C) Egraz Fails to Teach or Suggest Grinding of an Inorganic Particulate Material in the Presence of a Sub-Effective Amount of a Dispersant

While Egraz may disclose the use of a dispersing agent during grinding, it does not teach or suggest the use of this agent in a "sub-effective amount," as recited in each of independent claims 39, 68, and 69. The Office asserts that Applicant's previous arguments were "misleading" in that Applicant excluded purportedly essential part of the definition of "sub-effective" by excluding the term "finite amount." However, Applicant never intended to exclude this term from the definition of sub-effective. The specification and claims, as well as Applicant's previous arguments, make clear that the method of grinding an inorganic particulate material in an aqueous suspension described therein comprises a finite amount of dispersant for the inorganic particulate material. However, as explained, that finite amount must be a sub-effective amount "not sufficient to give rise to deflocculation of the particulate inorganic material, so that the flocculation characteristics are substantially the same as would be found in the complete absence of any dispersant." Specification at 3, lines 6-10; Previous Response at 2-3. This concept is neither taught nor suggested by Egraz.

As outlined in the specification, the amount of dispersant necessary to deflocculate inorganic particulate materials may vary with the type of dispersant used and the type of particulate material to be dispersed. It would be well within the scope of one of ordinary skill in the art, however, to vary the amounts of those materials to achieve the effect provided by the exemplary embodiments of the present invention.

See, e.g., Specification at p. 6, lines 27-32; p. 7, lines 1-2. While Egraz may disclose that its grinding/dispersing agent may be used in a proportion from 0.2% to 2% by weight of the dried fraction of said polymers, in relation to the dry weight mass of the mineral substances to be fined (col. 5, lines 19-26), Egraz does not disclose that this proportion should be selected for a specific aqueous suspension, such that it is present in a sub-effective amount. In fact, each of the 19 individual examples of Egraz specifically use an amount at least above 0.9%—an amount found by the present inventors to generally be well above that representing a sub-effective amount. See Specification at p. 3, lines 3-13. Such examples indicate that Egraz never contemplated the use of a sub-effective amount, and clearly establish that it would not have rendered the use of a sub-effective amount obvious to one of ordinary skill in the art.

Therefore, because Mortimer does not teach or suggest the use of any dispersant agent during grinding, and Egraz fails to teach or suggest the use of a dispersant in a sub-effective amount, the combination of Mortimer and Egraz cannot render *prima facie* obvious any of pending claims 39-49 and 51-77 under 35 U.S.C. § 103(a), and Applicant respectfully requests reconsideration and withdrawal of the claim rejection.

2) Dependent Claim 50

Claim 50 was rejected under 35 U.S.C. § 103(a) as allegedly being obvious based on Mortimer and Egraz as applied to claims 39-49 and 51-77 above, and further in view of U.S. Pat. App. Pub. No. US 2001/0022282 to Nagaraj et al. ("Nagaraj"). The Office admits that neither Mortimer nor Egraz discloses the use of hexametaphosphate

as a dispersant, but asserts that this dispersant is taught by Nagaraj as advantageous as a dispersant of kaolin clay in water. See Office Action dated May 28, 2008, at p. 6. Applicant respectfully traverses this claim rejection.

Claim 50 depends from allowable independent claim 39 as explained above. Whatever Nagaraj may teach about the dispersant hexametaphosphate, it fails to overcome the above-outlined deficiencies of Mortimer and Egraz. In particular, Nagaraj also fails to teach or suggest the grinding of an inorganic particulate material in an aqueous dispersion comprising a sub-effective amount of dispersant. For at least those reasons, Applicant respectfully requests reconsideration and withdrawal of the rejection of dependent claim 50 under 35 U.S.C. § 103(a) based on Mortimer, Egraz, and Nagaraj.

3) Dependent Claim 78

Claim 78 was rejected under 35 U.S.C. § 103(a) as allegedly being obvious based on Mortimer and Egraz as applied to claims 39-49 and 51-77 above, and further in view of U.S. Patent No. 4,915,845 to Leighton et al. ("Leighton"). The Office concedes that neither Mortimer nor Egraz discloses the use of their dispersant as a corrosion inhibitor in an aqueous suspension of an inorganic particulate material, but asserts that Leighton teaches dispersants having corrosion inhibition to maintain water contaminates in a dispersed state. See Office Action dated May 28, 2008, at p. 7.

Amended independent claim 78 recites: "A process of inhibiting corrosion during the grinding of a low solids aqueous suspension of inorganic particulate material comprising the addition of a sub-effective amount of at least one dispersant for said

inorganic particulate material as a corrosion inhibitor in a low solids aqueous suspension." For reasons similar to those explained above, Mortimer and Egraz fail to teach or suggest the use of a sub-effective amount of at least one dispersant during the grinding of an inorganic particulate material. Whatever Leighton may teach about dispersants as corrosion inhibitors, Leighton fails to remedy this deficiency. Therefore, Applicant respectfully requests reconsideration and withdrawal of the § 103(a) rejection of independent claim 78 based on Mortimer, Egraz, and Leighton.

III. Conclusion

For at least the reasons set forth above, independent claims 39, 68, 69, and 78 should be allowable. Dependent claims 40-66 and 71-77 depend from a corresponding one of allowable independent claims 39, 68, and 69. Consequently, those dependent claims should be allowable for at least the same reasons the independent claims are allowable. Therefore, Applicant respectfully requests reconsideration of this application, entry of the amendments, reconsideration and withdrawal of the claim rejections, and allowance of pending claims 39-66, 68, 69, and 71-78.

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner. Applicant submits that the proposed amendments of claims 68 and 78 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicant respectfully points out that the final Office Action presents new positions as to the application of the references of record against Applicant's

claims. It is respectfully submitted that the entry of the amendments included in this Amendment After Final would allow Applicant to respond to the claim rejections. Finally, Applicant respectfully submits that entry of the amendments would place the application in better form for appeal, should the Examiner continue to dispute the patentability of the pending claims.

Applicant respectfully submits that the final Office Action contains a number of assertions concerning the related art and the claims. Regardless of whether those assertions are addressed specifically herein, Applicant respectfully declines to automatically subscribe to them.

If the Examiner believes that a telephone conversation might advance prosecution, the Examiner is cordially invited to call Applicant's undersigned attorney at (404) 653-6430.

Please grant any extensions of time required to enter this Amendment After Final and charge any additional required fees to our Deposit Account 06-0916.

Respectfully submitted,

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